'dilute nitric acid; it is positive to antimony and negative to bismuth in strong muriatic acid; it is positive to antimony and bismuth in dilute sulphuric acid; it is negative to bismuth and antimony in potash; and it is very negative to bismuth and antimony, either in the colourless or the yellow solution of sulphuret of potassium.

1000. In further illustration of this subject I will take ten metals, and give their order in seven different solutions, as on opposite page.

1ooi. The dilute nitric acid consisted of one volume strong acid and seven volumes of water; the dilute sulphuric acid, of one volume strong acid and thirteen of water; the muriatic acid, of one volume strong solution and one volume water. The strong nitric acid was pure, and of specific gravity 1.48. Both strong and weak solution of potassa gave the same order. The yellow sulphuret of potassium consisted of one volume of strong solution (800) and five volumes of water. The metals are numbered in the order which they presented in the dilute acids (the negative above), for the purpose of showing, by the comparison of these numbers in the other columns, the striking departures there from this, the most generally assumed order. Iron is included, but only in its ordinary state; its place in nitric acid being given as that which it possesses on its first immersion, not that which it afterwards acquires.

1002. The displacements appear to be most extraordinary, as extraordinary as those consequent on dilution (993); and thus show that there is no general ruling influence of fluid conductors, or even of acids, alkalies, etc., as distinct classes of such conductors, apart from their pure chemical relations. But how can the contact theory account for these results? To meet such facts it must be bent about in the most extraordinary manner, following all the contortions of the string of facts (862, 944, 980, 994., 1051), and yet never showing a case of the production of a current by contact alone, *i.e.* unaccompanied by chemical action.

1003. On the other hand, how simply does the chemical theory of excitement of the current represent the facts! as far as we can yet follow them they go hand in hand. Without chemical action, no current; with the changes of chemical

action, changes of current; whilst the influence of the strongest cases of *contact,* as of silver and tin (985) with each other, pass for nothing in the result. In further confirmation, the exciting power does not rise, but fall, by the contact of the bodies pro-